

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents
 United States Patent and Trademark
 Office
 Box PCT
 Washington, D.C.20231
 ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 20 September 2000 (20.09.00)	
International application No. PCT/GB99/04275	Applicant's or agent's file reference P20962WO
International filing date (day/month/year) 16 December 1999 (16.12.99)	Priority date (day/month/year) 19 December 1998 (19.12.98)
Applicant CROSSLAND, William, Alden et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:

11 July 2000 (11.07.00)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was
☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer Pascal Piriou Telephone No.: (41-22) 338.83.38
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PATENT COOPERATION TREATY

PCT

NOTIFICATION OF THE RECORDING
OF A CHANGE(PCT Rule 22bis and
Administrative Instructions, Section 422)

From the INTERNATIONAL BUREAU

To:

GODDARD, David, John
Harrison Goddard Foote
11c Compstall Road
Marple_Bridge
Stockport SK6 SHH
ROYAUME-UNIDate of mailing (day/month/year)
17 November 2000 (17.11.00)Applicant's or agent's file reference
P20962WO

IMPORTANT NOTIFICATION

International application No.
PCT/GB99/04275International filing date (day/month/year)
16 December 1999 (16.12.99)

1. The following indications appeared on record concerning:

☐ the applicant ☐ the inventor ☒ the agent ☐ the common representative

Name and Address

GODDARD, David, John
Harrison Goddard Foote
1 Stockport Road
Marple
Stockport SK6 6BD
United Kingdom

State of Nationality

State of Residence

Telephone No.

0161 427 7005

Facsimile No.

0161 427 7026

Teleprinter No.

2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:

☐ the person ☐ the name ☒ the address ☐ the nationality ☐ the residence

Name and Address

GODDARD, David, John
Harrison Goddard Foote
11c Compstall Road
Marple_Bridge
Stockport SK6 SHH
United Kingdom

State of Nationality

State of Residence

Telephone No.

Facsimile No.

Teleprinter No.

3. Further observations, if necessary:

4. A copy of this notification has been sent to:

☒ the receiving Office ☐ the designated Offices concerned
☐ the International Searching Authority ☒ the elected Offices concerned
☒ the International Preliminary Examining Authority ☐ other:The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer

Lazar Joseph Panakal

Telephone No.: (41-22) 338.83.38

PATENT COOPERATION TREATY

06. NOV. 2000 PCT 6662

From the INTERNATIONAL BUREAU

NOTIFICATION OF THE RECORDING OF A CHANGE

(PCT Rule 92bis.1 and
Administrative Instructions, Section 422)

To:

GODDARD, David, John
Harrison Goddard Foote
1 Stockport Road
Marple
Stockport SK6 6BD
ROYAUME-UNI

Date of mailing (day/month/year)
25 October 2000 (25.10.00)

Applicant's or agent's file reference
P20962WO

International application No.
PCT/GB99/04275

IMPORTANT NOTIFICATION

International filing date (day/month/year)
16 December 1999 (16.12.99)

1. The following indications appeared on record concerning:

☒ the applicant ☒ the inventor ☐ the agent ☐ the common representative

Name and Address
Tat, Chi, B, Yu

State of Nationality State of Residence

Telephone No.

Facsimile No.

Teleprinter No.

2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:

☐ the person ☐ the name ☐ the address ☐ the nationality ☐ the residence

Name and Address

State of Nationality State of Residence

Telephone No.

Facsimile No.

Teleprinter No.

3. Further observations, if necessary:

Mr. Yu is removed from this international application.

4. A copy of this notification has been sent to:

☒ the receiving Office ☐ the designated Offices concerned
☐ the International Searching Authority ☒ the elected Offices concerned
☒ the International Preliminary Examining Authority ☐ other:

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer

V. Gross

Telephone No.: (41-22) 338.83.38

PATENT COOPERATION TREATY

10.JUL.2000* 4228

PCT

NOTIFICATION OF THE RECORDING OF A CHANGE

(PCT Rule 92bis.1 and
Administrative Instructions, Section 422)

From the INTERNATIONAL BUREAU

To:

GODDARD, David, John
Harrison Goddard Foote
1 Stockport Road
Marple
Stockport SK6 6BD
ROYAUME-UNI

Date of mailing (day/month/year) 28 June 2000 (28.06.00)	
Applicant's or agent's file reference P20962WO	IMPORTANT NOTIFICATION
International application No. PCT/GB99/04275	International filing date (day/month/year) 16 December 1999 (16.12.99)

1. The following indications appeared on record concerning: <input checked="" type="checkbox"/> the applicant <input checked="" type="checkbox"/> the inventor <input type="checkbox"/> the agent <input type="checkbox"/> the common representative		
Name and Address	State of Nationality	State of Residence
	Telephone No.	
	Facsimile No.	
	Teleprinter No.	
2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning: <input checked="" type="checkbox"/> the person <input type="checkbox"/> the name <input type="checkbox"/> the address <input type="checkbox"/> the nationality <input type="checkbox"/> the residence		
Name and Address COKER, Timothy, Martin 4 Brewery Court South Road Oundel Peterborough PE8 4DZ GBX United Kingdom	State of Nationality GB /	State of Residence GB
	Telephone No.	
	Facsimile No.	
	Teleprinter No.	
3. Further observations, if necessary: <u>Please note the addition of the above-mentioned applicant/inventor for the United States of America only.</u>		
4. A copy of this notification has been sent to: <input checked="" type="checkbox"/> the receiving Office <input type="checkbox"/> the designated Offices concerned <input type="checkbox"/> the International Searching Authority <input type="checkbox"/> the elected Offices concerned <input type="checkbox"/> the International Preliminary Examining Authority <input type="checkbox"/> other:		

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer N. Wagner Telephone No.: (41-22) 338.83.38
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PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference P20962W0	FOR FURTHER ACTION		see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.
International application No. PCT/GB 99/ 04275	International filing date (day/month/year) 16/12/1999	(Earliest) Priority Date (day/month/year) 19/12/1998	
Applicant THE SECRETARY OF STATE FOR DEFENCE et al.			

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 2 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ Certain claims were found unsearchable (See Box I).

3. ☐ Unity of invention is lacking (see Box II).

4. With regard to the title,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is Figure No.

☐ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☒ because this figure better characterizes the invention.

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☐ None of the figures.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 99/04275

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 G09G3/36

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G09G

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 92 04710 A (NORTHERN TELECOM LTD) 19 March 1992 (1992-03-19)	1-9, 11-29
Y	the whole document	10
Y	GB 2 247 974 A (STC PLC) 18 March 1992 (1992-03-18)	10
A	cited in the application page 8, paragraph 3 -page 9, paragraph 1	6,22
A	EP 0 856 767 A (SHARP KK) 5 August 1998 (1998-08-05)	22-25
A	column 7, line 27 -column 9, line 51	
A	US 5 598 284 A (KONUMA TOSHIMITSU ET AL) 28 January 1997 (1997-01-28)	26
	column 7, line 59 -column 8, line 62	



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

& document member of the same patent family

Date of the actual completion of the international search

2 May 2000

Date of mailing of the international search report

10/05/2000

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Amian, D

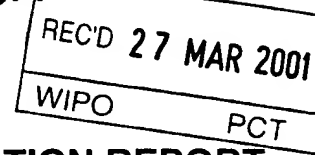
INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No



PCT/GB 99/04275

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9204710 A	19-03-1992	GB 2247973 A DE 69117188 D DE 69117188 T EP 0548136 A JP 6501108 T US 5751266 A	18-03-1992 28-03-1996 27-06-1996 30-06-1993 27-01-1994 12-05-1998
GB 2247974 A	18-03-1992	DE 69116694 D DE 69116694 T EP 0548179 A WO 9204709 A JP 6501568 T US 5774104 A	07-03-1996 30-05-1996 30-06-1993 19-03-1992 17-02-1994 30-06-1998
EP 0856767 A	05-08-1998	GB 2321754 A JP 10240170 A	05-08-1998 11-09-1998
US 5598284 A	28-01-1997	JP 7191304 A	28-07-1995



INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P20962WO		See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416) FOR FURTHER ACTION
International application No. PCT/GB99/04275	International filing date (day/month/year) 16/12/1999	Priority date (day/month/year) 19/12/1998
International Patent Classification (IPC) or national classification and IPC G09G3/36		
Applicant THE SECRETARY OF STATE FOR DEFENCE et al.		
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of 18 sheets.</p>		
<p>3. This report contains indications relating to the following items:</p> <ul style="list-style-type: none">I <input checked="" type="checkbox"/> Basis of the reportII <input type="checkbox"/> PriorityIII <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicabilityIV <input type="checkbox"/> Lack of unity of inventionV <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statementVI <input type="checkbox"/> Certain documents citedVII <input checked="" type="checkbox"/> Certain defects in the international applicationVIII <input checked="" type="checkbox"/> Certain observations on the international application		
Date of submission of the demand 11/07/2000		Date of completion of this report 23.03.2001
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465		Authorized officer Kiernan, L Telephone No. +49 89 2399 2185 

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/GB99/04275

I. Basis of the report

1. This report has been drawn on the basis of *(substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments (Rules 70.16 and 70.17).):*

Description, pages:

2,3,5,8-11,16,18-20, as originally filed
22-27,29-32,35,
37

1,4,6,7,12-15,17, as received on 24/01/2001 with letter of 24/01/2001
21,28,33,34,36,
38

Claims, No.:

1-20 as received on 24/01/2001 with letter of 24/01/2001

Drawings, sheets:

1/14-14/14 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/GB99/04275

listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-20
	No:	Claims	
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1-20
Industrial applicability (IA)	Yes:	Claims	1-20
	No:	Claims	

2. Citations and explanations
see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:
see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:
see separate sheet

The following documents are considered in this International Preliminary Examination Report:

D1= WO 92 04710 A

D2= GB-A-2 247 974 cited in the application

SECTION V

1. The subject-matter of claim 1 concerns the definition of the various steps of a method required to control an array of optical elements. In this regard, document D2 discloses a method for controlling an array of optical elements (see bridging paragraph P. 8-9). More specifically, D2 details a cyclic method wherein the optical elements alter their states to display a series of input data sets (see bridging paragraph P. 8-9). The method disclosed in D2 entails 2 separate cycles, the first requiring writing the display data to the optical array and a second corresponding to a blanking, or erasing of all of the display data in a single frame before display a new data set. The subject-matter of claim 1 differs from the method of D2 in that the blanking step is achieved by selective erasing of a respective data set. However, selective erasing of data sets in subsequent frames with a view to both reduce the writing time and cumulative charge imbalance, i.e. turning on or off the affected single pixels in a display device, is a well established method of controlling an array of optical elements (see for example D1, abstract and claim 1). Therefore, employing selective erasing of a respective data set to achieve blanking is merely one of several straightforward possibilities from which a person skilled in the art of driving methods for display devices would select, in accordance with circumstances, without the exercise of inventive skill, in order to solve the problem posed. Consequently, the subject-matter of claim 1 is not considered as involving an inventive step, within the meaning of Article 33(3) PCT.
2. As far as can be understood (see Section VIII(1.1 and 1.2)), the method steps defined by the subject-matter of claims 2-11 would appear to be standard design options available to a person skilled in the art (see for example D1, P. 11, second

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/GB99/04275

paragraph) which would be implemented without exercising inventive skill.

Therefore, the subject-matter of claims 2-11 are not considered as involving an inventive step (Article 33(3) PCT).

3. For the same reasons as outlined in point 1, the corresponding independent device claim 13, is not considered as involving an inventive step (Article 33(3) PCT with respect to the combination of documents D2 and D1.
4. The device features defined by the subject matter of claims 14-20 are standard features associated with active matrix ferroelectric liquid crystal displays (see for example D1, Fig. 2 and Fig. 3 and associated text) available to a person skilled in the art, which would be employed without exercising inventive skill. Therefore, the subject-matter of claims 14-20 are not considered as involving an inventive step (Article 33(3) PCT).

SECTION VII

1. The features of the claims are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).

SECTION VIII

1. The subject-matter of the claims is not clear, under the meaning of Article 6 PCT, for the following reasons:
 - 1.1 Claim 2 makes reference to the "active elements of **said first set**". Neither claim 2 nor claim 1 mention any antecedent of said first set (similarly, any second set). Therefore, it is unclear as to which part of the controlling method is to be defined by the features first and second set.
 - 1.2 It is not clear from the context of claim 4 (also claim 5) what is meant by the expression "the voltage on the spaced electrode and the voltage applied to each element of the array are all shifted substantially simultaneously by the

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/GB99/04275

same amount and in the same direction relative to a reference voltage". This formulation is vague and does not establish an unambiguous definition of any corresponding steps of the method for which protection is sought.

- 1.3 The dependency of claim 12 is unclear since it has been made dependent on itself. Moreover, it is not clear from the context of claim 12 as to what is meant by the term "dc balancing".
- 1.4 Claim 13 (and its corresponding dependent claims 14-20) represent a mixture of device and method categories of claims (see PG, C-III-3.1) defining device features using method steps. Thus, there arises some confusion as to the subject-matter for which protection is sought. It is not clear which device features of the "control means" are defined by the "first" and "second" writing and erasing steps.

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
AU	Australia	GA	Gabon	LV	Larvia	SZ	Swaziland
AZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
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EE	Estonia	LR	Liberia	SG	Singapore		